Tornado frequency per unit area. (In U. S. Weather Bureau. MONTHLY WEATHER REVIEW, v. 25, p. 250–251. Washington, June, 1897.)

Property loss by tornadoes during the period 1889–1897. (In U. S. Weather Bureau. Report of the Chief, 1897–98, p. 304.)

Annual Report of the Chief of the Weather Bureau, beginning 1916–17, contains a section giving descriptions of tornadoes in each State during the year.

Numerous descriptions of individual tornadoes are scattered through the files of the MONTHLY WEATHER REVIEW, published by the U. S. Weather Bureau.

Some of the more important of these are:

St. Louis tornado of May 27, 1896. 1896, Mar., **24**: 77–81.

Omaha tornado of March 23, 1913. 1913, Mar., **41**: 396–397; 481–483.

Tornadoes in Kansas. (Summary.) 1915, Dec., **43**: 615–617.

Characteristics of tornadoes. 1899, Jan., **27**: 157.

Wind force in tornadoes. 1901, Sept., **29**: 419.

Tornadoes in eastern Nebraska, April 6, 1919. 1919, Apr., **47**: 234–236.

Tornado at Fergus Falls, Minn., June 22, 1919. 1919, June, **47**: 392–393.

Kansas tornadoes. 1919, July, **47**: 447–484.

Cyclones should not be confused with tornadoes. 1906, Jan., **34**:165.

Climatological Data for the United States by Sections also contains reports of tornadoes.—*C. F. Talman.*

THE HAILSTORM OF APRIL 8, 1920, IN WASHINGTON COUNTY, ALA.

About 5 p. m. on April 8, 1920, a severe hailstorm occurred in southwestern Washington County near Deer Park and Vinegar Bend, Ala. The storm came up with heavy and black clouds and moved from northwest to southeast, and was accompanied by heavy thunder, high winds, and heavy rainfall, amounting to about 2 inches (estimated). The hail fell over a strip about 3½ miles wide to an average depth of about 2½ inches, and drifted in places to a depth of 3 to 5 feet. The hailstones were about the size of a medium-sized hen's egg, egg-shaped and flat. Windows were broken, fruit was knocked off the trees, and leaves of trees, especially of the magnolia, were cut to shreds. The first hailstones that fell were snowy white; later the hailstones became clearer and more angular than when first observed. These details were kindly furnished by the postmaster at Deer Park, Ala.—*P. H. Smyth.*

CLOUDINESS IN NEW YORK STATE.

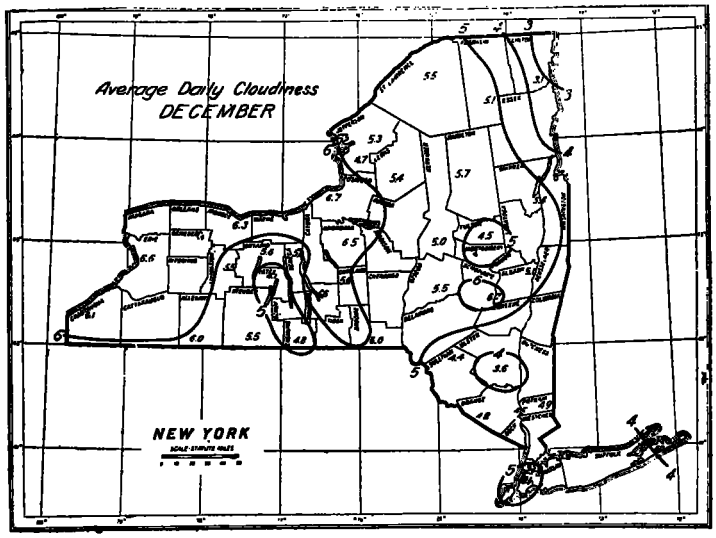
By ERNEST S. CLOWES.

[Bridgehampton, Long Island, N. Y., Apr. 14, 1920.]

With the exception of North Carolina, the State of New York contains a greater range of temperature than any eastern State and it exceeds even North Carolina in the variety of its climatological features. With a seacoast of 250 miles and an approximately equal shore line on the Great Lakes, with elevations varying from sea level to 5,000 feet above, and lying, as it does, in the track of the great majority of storms that cross the American Continent, it offers an opportunity probably unequaled by any similar area in the world for a study of the varied phenomena of weather and climate. In this paper it is only intended to consider the distribution of cloudiness throughout the State as it is typically illustrative of lower cloud formation.

It has long been known that the leeward shores of the Great Lakes are one of the cloudiest regions of the United States, especially during the winter season; and further study goes to show that in all the lake region the cloudiest section is that along the eastern shores of Lake Erie and Lake Ontario where in addition to the situation of a leeward shore is added that of a marked elevation of the land area. At the same time it was recognized that other parts of New York were relatively sunny in winter, and so, in order to partly clear up this rather cloudy situation, this little study was undertaken while the author was at Syracuse, N. Y., in the service of the U. S. Weather Bureau and able to avail himself of the opportunities there offered.

The method employed was as follows: A number of stations, regular and cooperative, were selected with records of clear, partly cloudy, and cloudy days extending back for at least five years. From these records the months of December and June were selected to represent the maximum and minimum of cloudiness, although it is likely that July in some cases would have been nearer the minimum and November to the maximum. A five-year average was then made for each of these stations of the number of clear, partly cloudy, and cloudy days in each of these months. What was most wanted, however, was an expression of the average daily cloudiness. This was secured as follows: As the expression clear means a cloudiness of from 0 to 3 on a scale of 10; partly cloudy from 4 to 7, inclusive, and cloudy from 8 to 10; the average number of clear days was multiplied by 1½, of partly cloudy by 5, and of cloudy by 8½. The sum of the results was divided by 30, giving an expression for average daily cloudiness that was well within the limits of experimental error and which gave a fair basis for comparison. These figures were then inserted on their proper places on the map and lines of equal cloudiness drawn as shown. A contour map of the State with lines drawn at 500, 1,000, and 1,500 feet was also prepared.



Let us first look at the December map. The area of greatest cloudiness covers the entire western half of the State except for a "hump" of relatively clear skies from the southern boundary to the neighborhood of Rochester. Within this "hump" is an oval area covering the counties of Yates, Schuyler, and Chemung with an even less degree of cloudiness: 20 to 30 per cent less than in the section 50 miles to either side. This cloudy belt of western New York is, of course, explained by the prevailing northwest winds rising from the lakes to the high land of the interior which at this season is much colder than the water surface. The relatively clear spot in the